AMENDMENT

1. (Original): A communication system comprising:

a receiver structured to receive a substantially continuous sine wave carrier signal, the signal modulated to contain communication data;

a demodulator communicating with the receiver, the demodulator structured to demodulate the communication data from the substantially continuous sine wave carrier signal; and

a transmitter coupled to the demodulator, the transmitter including an electromagnetic pulse generating circuit, with the electromagnetic pulse generating circuit structured to transmit a plurality of electromagnetic pulses, with the pulses configured to include the communication data.

2. (Original): The communication system of claim 1, wherein the substantially continuous sine wave carrier signal is selected from a group consisting of: an amplitude modulated signal, a phase angle modulated signal, a frequency angle modulated signal, an orthogonal frequency division multiplexing modulated signal, a quadrature amplitude modulation signal, a dual sideband modulated signal, a single sideband modulated signal, and a vestigial sideband modulated signal.

3. (Original): The communication system of claim 1, wherein the substantially continuous sine wave carrier signal has a radio frequency bandwidth that may range between about 10 kilohertz to about 5 megahertz.

4. (Original): The communication system of claim 1, wherein the demodulator is selected from a group consisting of: an amplitude demodulation circuit, a quadrature amplitude demodulation circuit, a frequency angle demodulation circuit, a phase angle demodulation circuit, and an orthogonal frequency division demodulating circuit.

5. (Original): The communication system of claim 1, wherein the electromagnetic pulse generating circuit comprises:

a control unit;

at least two current sources;

at least two switching elements connected to the current sources, each of the switching elements structured to receive a signal from the control unit;

a switch connected to the at least two switching elements, the switch structured to receive a signal from the control unit; and

a load connected to the switch.

6. (Original): The communication system of claim 5, further comprising:

a first set of resistive elements connected to the current sources, and to the switching elements, the resistive elements also connected to a second voltage level.

7. (Original): The communication system of claim 5, further comprising:

a second set of resistive elements connected to the switching elements, and to the switch, the second set of resistive elements also connected to the second voltage level.

8. (Original): The communication system of claim 5, wherein the current sources are comprised of at least one transistor.

9. (Original): The communication system of claim 5, wherein each of the at least two switching elements comprise at least one transistor.

10. (Original): The communication system of claim 5, wherein the switch comprises an inverter.

11. (Original): The communication system of claim 5, wherein the load is selected from a group consisting of: a resistive element, an energy storage element, and a capacitor.

12. (Original): The communication system of claim 1, wherein each of the plurality of electromagnetic pulses may vary in amplitude from about –5 volts to about 5 volts.

13. (Original): The communication system of claim 1, wherein each of the plurality of electromagnetic pulses may have a duration ranging from about 1 pico-second to about 1 milli-second.

14. (Original): The communication system of claim 1, wherein the communication data is segmented into individual components selected from a group consisting of: received data, routing information, destination information, quality-of-service information, bit-error-rate information, priority information and latency information.

15. (Original): The communication system of claim 1, wherein the communication data is received in a first communication format, segmented, and re-assembled in a second communication format.

16. (Original): The communication system of claim 15, wherein the second communication format comprises an ultra-wideband communication format.

17. (Original): The communication system of claim 15, wherein the first communication format includes a format selected from a group consisting of: a substantially continuous sine wave carrier signal format; an amplitude modulated signal format, a phase angle modulated signal format, a frequency angle modulated signal format, an orthogonal frequency division multiplexing modulated signal format, a quadrature amplitude modulation signal format, a dual sideband modulated signal format, a single sideband modulated signal format, and a vestigial sideband modulated signal format.

18. (Original): The communication system of claim 1, further including a first transmission medium coupled to the receiver, wherein the receiver receives the substantially continuous sine wave carrier signal through the first transmission medium.

19. (Original): The communication system of claim 18, wherein the first transmission medium is a wireless medium.

20. (Original): The communication system of claim 18, wherein the first transmission medium is selected from a group consisting of: an optical fiber ribbon, a fiber optic cable, a single mode fiber optic cable, a multi-mode fiber optic cable, a twisted pair wire, an unshielded twisted pair wire, a plenum wire, a PVC wire, a coaxial cable, and an electrically conductive material.

21. (Original): The communication system of claim 1, further including a second transmission medium coupled to the transmitter, wherein the transmitter transmits the plurality of electromagnetic pulses through the second transmission medium.

22. (Original): The communication system of claim 21, wherein the second transmission medium is a wireless medium.

23. (Original): The communication system of claim 21, wherein the second transmission medium is selected from a group consisting of: an optical fiber ribbon, a fiber optic cable, a single mode fiber optic cable, a multi-mode fiber optic cable, a twisted pair wire, an unshielded twisted pair wire, a plenum wire, a PVC wire, a coaxial cable, and an electrically conductive material.

24. (Original): The communication system of claim 1, wherein each of the plurality of transmitted electromagnetic pulses occupies substantially the same radio frequency spectrum.

25. (Original): The communication system of claim 1, wherein each of the plurality of electromagnetic pulses is transmitted so that each pulse occupies a discrete portion of the radio frequency spectrum.

26. (Original): A communication system comprising:

a receiver structured to receive a plurality of electromagnetic pulses, with the electromagnetic pulses configured to include communication data;

a demodulator communicating with the receiver, the demodulator structured to demodulate the communication data from the plurality of electromagnetic pulses; and

a transmitter coupled to the demodulator, the transmitter including an electromagnetic pulse generating circuit, with the electromagnetic pulse generating circuit structured to transmit a substantially continuous sine wave carrier signal, with the substantially continuous sine wave carrier signal modulated to contain the communication data.

27. (Original): The communication system of claim 26, wherein the electromagnetic pulse generating circuit comprises:

a control unit;

a first set of current sources connected to a first voltage;

a first set of switching elements connected to the first set of current sources, each of the first set of switching elements structured to receive a signal from the control unit;

a switch connected to the first set of switching elements, the switch structured to receive a signal from the control unit;

a second set of switching elements connected to the switch, each of the second set of switching elements structured to receive a signal from the control unit;

a second set of current sources connected to the second set of switching elements, each of the second set of current sources connected to a second voltage level; and

a load connected to the switch, and to the second voltage level.

28. (Original): The communication system of claim 26, wherein the electromagnetic pulses may vary in amplitude from about –5 volts to about 5 volts.

29. (Original): The communication system of claim 26, wherein the electromagnetic pulses may have a duration from about 1 pico-second to about 1 milli-second.

30. (Original): The communication system of claim 26, wherein the substantially continuous sine wave carrier signal is selected from a group consisting of: an amplitude modulated signal, a phase angle modulated signal, a frequency angle modulated signal, an orthogonal frequency division multiplexing modulated signal, a quadrature amplitude modulation signal, a dual sideband modulated signal, a single sideband modulated signal, and a vestigial sideband modulated signal.

31. (Original): The communication system of claim 26, further including a first transmission medium coupled to the receiver, wherein the receiver receives the plurality of electromagnetic pulses through the first transmission medium.

32. (Original): The communication system of claim 31, wherein the first transmission medium is a wireless medium.

33. (Original): The communication system of claim 31, wherein the first transmission medium is selected from a group consisting of: an optical fiber ribbon, a fiber optic cable, a single mode fiber optic cable, a multi-mode fiber optic cable, a twisted pair wire, an unshielded twisted pair wire, a plenum wire, a PVC wire, a coaxial cable, and an electrically conductive material.

34. (Original): The communication system of claim 26, further including a second transmission medium coupled to the transmitter, wherein the transmitter transmits the substantially continuous sine wave carrier signal through the second transmission medium.

35. (Original): The communication system of claim 34, wherein the second transmission medium is a wireless medium.

36. (Original): The communication system of claim 34, wherein the second transmission medium is selected from a group consisting of: an optical fiber ribbon, a fiber optic cable, a single mode fiber optic cable, a multi-mode fiber optic cable, a twisted pair wire, an unshielded twisted pair wire, a plenum wire, a PVC wire, a coaxial cable, and an electrically conductive material.

37. (Original): The communication system of claim 26, wherein the communication data is segmented into individual components selected from a group consisting of: received data, routing information, destination information, quality-of-service information, bit-error-rate information, priority information and latency information.

38. (Original): The communication system of claim 26, wherein the communication data is received in a first communication format, segmented, and re-assembled in a second communication format.

39. (Original): The communication system of claim 38, wherein the first communication format comprises an ultra-wideband communication format.

40. (Original): The communication system of claim 38, wherein the second communication format includes a format selected from a group consisting of: a substantially continuous sine wave carrier signal format; an amplitude modulated signal format, a phase angle modulated signal format, a frequency angle modulated signal format, an orthogonal frequency division multiplexing modulated signal format, a quadrature amplitude modulation signal format, a dual sideband modulated signal format, a single sideband modulated signal format, and a vestigial sideband modulated signal format.

41. (Currently Amended): A method of transmitting data, the method comprising the steps of:

receiving data from a substantially continuous sine wave carrier signal;

demodulating the data;

providing an electromagnetic pulse generating circuit;

generating a plurality of electromagnetic pulses arranged to represent the demodulated data; and

transmitting the plurality of electromagnetic pulses.

42. (Original): The method of transmitting data of claim 41, wherein the step of generating a plurality of electromagnetic pulses comprises means for generating a plurality of electromagnetic pulses.

43. (Original): The method of transmitting data of claim 41, wherein the transmitted electromagnetic pulses are either a plurality of single-band electromagnetic pulses or a plurality of multi-band electromagnetic pulses.

44. (Canceled)

45. (Original): The method of transmitting data of claim 41, wherein step of transmitting the plurality of electromagnetic pulses comprises transmitting a plurality of multi-band electromagnetic pulses that have a radio frequency bandwidth that may range between about 200 megahertz to about 1 gigahertz.

46. (Original): The method of transmitting data of claim 41, wherein step of transmitting the plurality of electromagnetic pulses comprises transmitting a plurality of single-band electromagnetic pulses have a radio frequency bandwidth that may range between about 2 gigahertz to greater than 10 gigahertz.

47. (Original): The method of transmitting data of claim 41, wherein the steps of receiving data and transmitting the plurality of electromagnetic pulses comprise:

receiving the data and transmitting the plurality of electromagnetic pulses through a medium, the medium selected from a group consisting of: a wireless medium, an optical fiber ribbon, a fiber optic cable, a single mode fiber optic cable, a multi-mode fiber optic cable, a twisted pair wire, an unshielded twisted pair wire, a plenum wire, a PVC wire, a coaxial cable, and an electrically conductive material.